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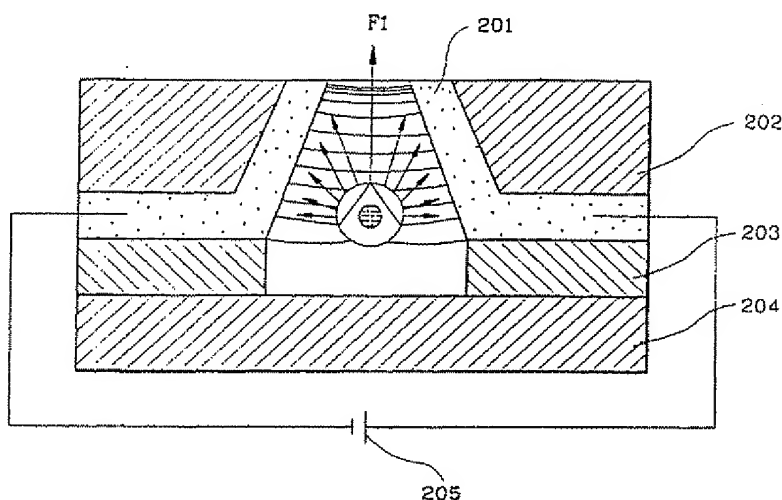
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(54) **Ink-jet printing using dielectric migration force**

(57) An ink-jet printing method is described. An ink chamber having an orifice through which ink may be ejected is charged with an ink containing polarizable pigment particles. A potential (205) is applied across a pair of electrodes (201) to establish an electric field within

the ink chamber to polarize the ink particles. The electric field lines are curved (i.e. the field strength increases in the direction of the ink ejection orifice) so as to exert a dielectric migration force on the polarized ink particles. This causes ink to be ejected through the orifice onto a print medium.

FIG. 7



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EUROPEAN SEARCH REPORT

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| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
|---|---|---|---|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
| X A | US 5 144 340 A (HOTOMI HIDEO ET AL) 1 September 1992 * column 4, line 63 - column 8, line 41 * * column 15, line 9 - column 17, line 54 * * column 18, line 46 - column 19, line 59 * * column 23, line 65 - column 24, line 45; figures 1-3,15-17 * * figures 20,21,28,29 * | 1-10,12, 13,15-20 11,14 | B41J2/06 |
| X A | US 4 717 926 A (HOTOMI HIDEO) 5 January 1988 * column 2, line 24 - column 5, line 33; figures 1-6 * | 1-9, 15-19 10-14,20 | |
| X A | PATENT ABSTRACTS OF JAPAN vol. 015, no. 053 (M-1079), 7 February 1991 & JP 02 286348 A (MINOLTA CAMERA CO LTD), 26 November 1990 * abstract * | 1-9,12, 15-19 10,11, 13,14,20 | TECHNICAL FIELDS SEARCHED (Int.Cl.6) B41J |
| X A | EP 0 488 113 A (MATSUSHITA ELECTRIC IND CO LTD) 3 June 1992 * column 5, line 9 - column 6, line 55; figures 2-4 * | 1-4, 6-10, 15-19 5,11-14, 20 | |
| X A | PATENT ABSTRACTS OF JAPAN vol. 017, no. 648 (M-1518), 2 December 1993 & JP 05 208500 A (MATSUSHITA ELECTRIC IND CO LTD), 20 August 1993 * abstract * | 1-4,6-9, 15-19 14 | |
| The present search report has been drawn up for all claims | | | |
| Place of search MUNICH | | Date of completion of the search 26 October 1998 | Examiner Widmeier, W |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p> | | | |

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